

CADPH
DG. 800
80C31

The Challenge of the '80s



3 1761 11891848 1



Ontario

Ministry of
Colleges and
Universities

Hon. Bette Stephenson, M.D., Minister
Harry K. Fisher, Deputy Minister

Preliminary Report of the Committee on the Future Role of Universities in Ontario

DEPOSITORY LIBRARY MATERIAL

CA24N
DG 800
-80C31

THE CHALLENGE OF THE '80s:
PRELIMINARY REPORT OF THE COMMITTEE ON THE
FUTURE ROLE OF UNIVERSITIES IN ONTARIO

In this preliminary report, the Committee on the Future Role of Universities in Ontario,

- . examines the most recently stated and adopted objectives of the Ontario university system, and accepts them as the starting point for its analysis;
- . reviews the extent to which universities have met the current objectives;
- . identifies challenges for the future under each objective;
- . considers different levels of government funding and the likely implications of each for the system;
- . considers different governing structures and comments on the strengths and weaknesses of each in relation to the evolution to date of the Ontario university system.

DEPOSITORY LIBRARY MATERIAL

Because this is a preliminary report, the Committee,

- . does not attempt to deal fully with every issue arising from its terms of reference,
- . makes no recommendations;
- . seeks at this stage only to identify the consequences of the choices to be made.

Comments and reactions should be addressed to :

Mr. Rodger Cummins
Secretary
Committee on the Future Role of Universities
University Relations Branch
9th Floor, Mowat Block
Ministry of Colleges and Universities
900 Bay Street
Toronto, Ontario M7A 1L2 (416) 965-3878

ERRATUM

The third line of the second paragraph on page 28 should read as follows:

entailing an average annual decrease of about \$19.5 million.



Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761118918481>

The Challenge of the '80s

Preliminary Report of the Committee on the Future Role of Universities in Ontario

H.K. Fisher, Chairman

**R.J. Butler
G.E. Connell
J.S. Dupré
M. Hamilton
G.A. Harrower
A.R. Marchment
M.S. Paikin
M.L. Pilkington
R.P. Riggan
R.L. Watts
B.A. Wilson
W.C. Winegard**

**E.J. Monahan, Resource Person
R.L. Cummins, Secretary**

March 1981

CONTENTS

Preface

<u>Introduction</u>	1
I. Past and Future Objectives of the Universities	7
II. Funding in Relation to Objectives	18
III. Structure of the System	33
<u>Conclusion</u>	45
<u>Appendices</u>	
A. Calculation of Expenditure Models	46
B. Program Elimination	53



PREFACE

On August 25, 1980, a meeting was held between the Premier, the Minister of Colleges and Universities and other members of the Cabinet, and the chairmen of the governing bodies and executive heads of the universities, Ryerson Polytechnical Institute, the Ontario Institute for Studies in Education and the Ontario College of Art. At the meeting, which had been called by the Premier to discuss matters concerning university affairs, the Premier asked the university representatives to prepare a plan that would address current issues. At the same time he asked the Chairman of the Ontario Council on University Affairs what steps the council was taking to ensure the effective use of the resources of the university system.

The executive heads of the universities responded to the Premier on November 5, 1980, with a brief representing a broad consensus of their views. This brief declared in part: "The situation of the Ontario universities has reached a point where in order to reconcile the publicly endorsed objectives for the universities and the level of publicly approved funding, it will require either substantially increased funding or scaling down the objectives of the universities." In September 1980, the Ontario Council on University Affairs had released two reports, A Financial Analysis of the Ontario University System - 1980 and System Rationalization.

Following a meeting held November 14, 1980, between the Premier, the Minister of Colleges and Universities and representatives of the executive heads, the formation of the Committee on the Future Role of Universities in Ontario was announced. The committee's terms of reference were given in a statement to the Legislature on November 28, 1980:

To develop a public statement of objectives for Ontario universities in the 1980s expressed in operational terms;

To relate the cost of meeting these objectives to funding levels;

To consider modifications to the funding mechanism that would provide appropriate processes to encourage voluntary institutional adjustments and interinstitutional cooperation to meet these objectives;

To define more clearly the appropriate joint roles of the individual institutions, the Council of Ontario Universities, the Ontario Council on University Affairs and the Government of Ontario;

To recommend such other policy changes as are judged likely to improve the ability of the Ontario universities to meet the agreed upon objectives.

The announcement called for a preliminary report by February 28, 1981 and a final report by June 30, 1981. It also said that discussions would be held with the university community and the public.

The committee is pleased to submit this preliminary report, which is intended to stimulate discussion rather than to address comprehensively every issue arising from the terms of reference. The committee looks forward to discussions with representatives of the university community and the public before submitting its final report.

INTRODUCTION

Background

During the thirty-six years since the end of the Second World War, the economic, social and cultural life of Ontario has been transformed. The output of its primary industries - chiefly agriculture, mining and forestry - has increased. Secondary industry has flourished, and the province has established a strong manufacturing base in a number of areas, among them metal fabricating, food processing, electrical products, base metals, chemicals, chemical products and machinery, and pulp and paper. Transportation has been improved by the development of extensive highway and urban transit systems. Access to international markets has been revolutionized by the St. Lawrence Seaway development. Nuclear fission has complemented hydro power to assure Ontario's energy supply. There has been tremendous growth in the service industries - which have become the province's largest source of employment - and strong demand for professionals in the fields of health, education, welfare and recreation. Significant advances have taken place in music, theatre, literature and the other arts.

Such developments have been realized only by an increase in the educational level of the population, through the combined efforts of highly educated professionals - scientists, social scientists, engineers and managers, primarily university-trained - and a skilled labour force. The post-World War II period has seen greater recognition of the value of higher education, in particular its importance to social and economic development. Educational policy has been aimed at meeting the need for a highly educated population in an increasingly complex, industrialized, technological society and was further designed to provide opportunities for the greatly enlarged number of youth, products of the post-war baby boom, who would reach university age in the 1960s and early 1970s.

Between 1945 and 1965 Ontario's increased investment in the university system expanded the number of publicly supported universities from three to fourteen. A fifteenth was added in 1973, when Wilfrid Laurier University became eligible for full funding. The government adopted and publicly stated a policy of accessibility to university, namely, that a place in some program at some Ontario university would be provided for every academically

qualified student who wished to pursue university studies. Public grants for the operation of universities increased dramatically, and the share of university operating costs borne by students and their families declined from approximately 30 per cent in the 1940s to a low of 15 per cent in 1976-77. A comprehensive student assistance program was introduced to assist those unable to meet the costs of their education from their own resources and those of their families.

In acknowledgment of Ontario's vast land area and in order to promote accessibility, new universities were established in different regions of the province. The government recognized that all regions, irrespective of their population size, make important contributions to the well-being of the province and that each region has a unique character and special needs. Thus, universities were established throughout Ontario's southern, northeastern and northwestern regions.

In 1963, in a major policy statement on the universities, the then premier of the province, the Honourable John Robarts, reviewed the planning for the expected growth. Expert forecasts of the time indicated that as many as 91,000 full-time undergraduate students would enrol by 1970, with 100,000 an outside possibility. This estimate was surpassed when enrolment reached 105,000 in 1970.

In 1965, the then Minister of University Affairs, the Honourable William Davis, suggested that by 1975, enrolment would be 150,000. The actual figure was 145,000.

During the 1960s and 1970s, however, there was an equally dramatic but less frequently noticed increase in part-time enrolment. Between 1962 and 1979 part-time enrolment increased more than sixfold, with the number of students rising from 13,750 to approximately 90,000. As well, registrations in non-credit courses in continuing education rose to 125,000 by this same year.

Designed in the late 1950s and early 1960s, the Ontario university system has accommodated as many as 195,876 full-time equivalent students. This level, reached in 1976-77, was the peak enrolment achieved in the 1970s and it might yet be surpassed. As the crest of the post-war boom approaches in 1983, it appears that the universities will have the capacity to accommodate it.

At the same time, universities have significantly increased the educational level of the population. The participation rate of the 18-24 age group rose to a high of 15.5 per cent in 1976-77 and accessibility was increased for all university-age groups.

In the fall 1979 term, Ontario universities enrolled 82,000 persons aged 25 years and over, mostly in part-time and graduate programs; persons in this age group comprised 23 per cent of the total full-time equivalent enrolment in that term. Academic programs in the French language were made more accessible and are now available at the University of Ottawa, Laurentian University and its affiliate, the Collège de Hearst, and at Glendon College of York University.

In the 1960s the government recognized that the universities should not bear alone the responsibility for accommodating the wide range of interests and aptitudes of those who desired a post-secondary education. As a result, in 1965 the government established a complementary system of colleges of applied arts and technology. These twenty-two colleges have enjoyed phenomenal growth since their establishment. They now register more than 100,000 full-time students, of whom 76,000 are in post-secondary programs.

The impressive contribution that the universities, Ryerson Polytechnical Institute, the Ontario College of Art, the Ontario Institute for Studies in Education and the community colleges together have made towards raising the educational level of Ontario's population can be seen in data collected in the 1976 census. In that year, 27 per cent of all 24-year-olds in Ontario had completed some diploma, certificate or degree program at the post-secondary level. A further 22 per cent had had some post-secondary education.

The mission of the university extends well beyond the provision of instructional programs. At the very heart of the university is its role in research and other scholarly work in pursuit of the advancement of knowledge. Scholars at Ontario universities have made many outstanding contributions to pure and applied research, to scholarship and culture. It is to be regretted that these achievements are not often widely known. It is not possible to catalogue these impressive accomplishments in this brief account, but a very few examples will illustrate the point.

Tuzo Wilson is the father of the theory of plate tectonics in geology. Marshall McLuhan revolutionized popular thought through his work on the effects of the mass media on culture. The University of Waterloo is a world leader in the development of computer languages. Northrop Frye made a major contribution to literary criticism. A group led by E.J. Burton at the University of Toronto constructed the first electron microscope. R.L. Noble of The University of Western Ontario introduced vinblastine for cancer therapy. G. Krotkov of Queen's University discovered photorespiration in plants. Donald Creighton of the University of Toronto wrote many prize-winning works on Canadian history. Every university could add to this list.

Throughout this post-war period of large-scale expansion, the universities' autonomy was largely preserved. Indeed, Ontario's universities are among the most autonomous publicly financed institutions in the world, and they have remained free to fulfil their basic missions of teaching and research and to serve as critics of social, political, economic and environmental issues.

The Current Setting

As Ontario enters the 1980s, what is the situation? What are the assets it has and what are the challenges it faces? The province is rich in natural resources: arable land, fresh water, minerals, forests and recreational land. It has an ample supply of electricity and is located in a country that is potentially self-sufficient in energy; it contains Canada's manufacturing base. The population is highly educated; the labour force is skilled. By any standard, this is an enviable heritage. But serious challenges and threats exist. Ontario manufacturers now encounter much stronger international competition. Like the Canadian economy as a whole, adjustments are required to accommodate rapidly escalating energy costs. Canadian investment in research and development is well below that of our major international competitors. Rates of economic growth are below the levels of previous years. Clearly, new strategies, new systems and new technologies are required.

Ontario's population is rapidly changing. Although it will continue to grow into the next century, the age profile will change: there will be a gradual decline in the 24-years-and-under age group and a substantial growth in the over-25 group. Demographic studies suggest that among those

dependent on the total labour force, the balance is shifting gradually from children and youth to the aged. There may be increased competition for public resources between health and other social services for the aged on the one hand and education on the other.

At the same time there will be new opportunities for higher education. The expanding number of people in the work force over 25 years of age might shift educational priorities to programs for skill up-grading, retraining and continuing professional competence. New programs will be needed to help keep an aging work force up-to-date, and the universities will have a major role to play in initiating such programs.

The universities face the future with considerable uncertainty. Enrolments have fluctuated. From a peak in 1976-77, enrolment fell five per cent by 1978-79, and participation rates dropped with enrolment. Enrolment has now recovered, having risen by about four per cent in the last two years; but it is not yet clear whether current enrolment growth reflects higher participation by Ontario residents, since the increase includes a rising number of visa students. After 1983, a sharp decline in the size of the traditional university-age group, 18-24, is expected (about 17 per cent between 1983 and 1996). In addition, enrolments are shifting among programs according to students' preferences, but universities are losing the flexibility to respond to these changes.

This loss of flexibility results from a number of factors. A moratorium on capital grants for new construction was imposed in the early 1970s, and capital funds have since remained at a low level. During the 1960s and 1970s, operating grants measured in constant dollars rose annually until 1976-77, but fell each year thereafter. The adequacy of library holdings is being threatened. Scientific equipment is not being properly maintained and replaced. Faculty and staff complements have begun to decline. Salaries and benefits in the universities have lagged behind those in the public and private sectors. Morale has declined; formal labour-relations processes are replacing the former collegial style of management. There is increasing recourse to litigation. The adaptive capacity of universities is under stress.

In 1979, the Ontario Council on University Affairs characterized the universities as being "on the brink", warning that the substantial investment Ontario has made in

its universities is now at risk. Current problems and future opportunities must now be squarely faced.

This preliminary report re-examines the current goals and objectives of the universities in the light of various financial scenarios and alternative funding mechanisms. It then looks at various ways of structuring relations between the universities and the government in order to develop a clearer view of the future.

I. PAST AND FUTURE OBJECTIVES OF THE UNIVERSITIES

The committee has been charged with the task of developing a "public statement of objectives for universities in the 1980s expressed in operational terms". The Government of Ontario, which in the past has offered objectives for the university system, adopted two years ago the public statement of objectives formulated by the Ontario Council on University Affairs. The committee is proposing to develop these objectives in operational terms but will not complete this task until it has received comments on its preliminary report.

The traditional purposes of the universities - to search for truth; to discover, store and disseminate knowledge; and to be critics of society - are as valid today as they have ever been. This is how the universities see themselves. Equally important in the 1980s is how the public sees the universities. The universities' *raison d'être* is, above all, to serve the public interest in a great variety of ways derived from their primary focus on knowledge and learning.

The significant service universities provide is one that no democratic society can do without. If they are allowed to deteriorate in quality, their decline will have a direct bearing on the economic health and well-being of the province. Ontario's industrial base cannot be maintained without first-class professionals, without educated people to analyze problems in the light of historical perspectives and perceptions of the future. The province faces a more competitive environment. Further adjustments are expected from rising energy costs. In general, economic growth rates are now low throughout the industrialized world.

Ontario must look to a future of living by its wits. It must educate people who are capable of doing excellent basic and applied research; it must provide an opportunity for qualified and motivated people to study at the frontiers of knowledge; and it must have professionals capable of serving as researchers, consultants, and advisors to governments. What is currently at stake is the universities' ability to serve Ontario and Canada. What they have done in the past, what they should do in the future, and what will best serve the people of Ontario is the subject of this chapter.

In 1967 the then Minister of University Affairs, the Honourable William Davis, offered the following objectives for the university system:

- . the provision of skills and knowledge that will allow graduates to play a vital role in our society;
- . the promotion of the powers of the mind so as to create men and women with a love for learning and the motivation to seek new knowledge throughout their lifetimes;
- . the search for truth and new understanding beyond the frontiers of present knowledge;
- . the transmission of our common culture both to its student body and to the wider community;
- . the provision of graduates whose attitudes are consistent with the free society in which we live.

The Commission on Post-Secondary Education in Ontario (1972) did not propose new objectives for the universities. It did, however, make several important recommendations: improving accessibility for women, native peoples, Franco-Ontarians and other minority groups; separating funding for research from funding for instruction and restructuring university-government relations.

In its 1978 report, The Ontario University System: A Statement of Issues, the Ontario Council on University Affairs restated the Ontario university system's objectives, which were subsequently adopted by the government:

- . To develop a more educated populace;
- . To educate and train people for the professions;
- . To provide study at the highest intellectual level;
- . To conduct basic and applied research, including development and evaluation;
- . To provide service to the community.

The committee has taken these objectives as its starting point, recognizing both that they are interrelated and that the ordering does not imply any hierarchy.

Developing a More Educated Populace

To a large extent this objective is being realized. The contributions of the universities, complemented by those of the colleges of applied arts and technology, have been substantial. The universities are distributed across the province and offer a wide range of academic programs. Places in some program at some university are available to all students who wish to enter university and who have completed secondary school with a minimum of 60 per cent on six Grade 13 credits. We do not have strictly comparable data comparing Ontario participation rates with those of other countries. But the 1976 UNESCO data on post-secondary participation rates for the 20-24 age group placed Canada second only to the United States among industrialized countries. Access to university has been extended to all relevant age groups. The participation rate of women has increased. This is also true for Franco-Ontarians. A beginning has been made towards extending university education to native peoples and to the physically handicapped.

This objective continues to be critically important for the province's future. But for the 1980s, what does it mean in operational terms? Ontario's policy of accessibility has not been based on any pre-determined level of participation for the 18-24 age group or for any other age group. Indeed, over the last two decades the average age of university students has been rising as more people enter university after some time in the work force. The guiding force has been student demand and the policy has been to accommodate it as long as basic academic requirements are met.

Evidence is developing of a growing shortage of scientists, engineers and managers as Canada expands investment in research and development so that its expenditures approximate those of its international competitors. Evidence from the labour market and from surveys of graduates does not indicate an oversupply of university-trained people. Unemployment is lowest among university graduates, and it is unlikely that the supply will exceed labour-market demand. Beyond this, Ontario needs more people with a university education both because it is of personal value to them and because they play an important role in the social and economic life of the province.

The policy of accommodating student demand remains valid. But can Ontario afford to finance this objective in the current economic environment? It may be asked as well

whether Ontario can afford not to continue to make this heavy investment in university education. These are major questions of public policy for any government to answer.

In broaching these questions government should be aware that the pursuit of accessibility during the past two decades, vigorous though it has been, has left many things undone. Among the future challenges are:

- . responding to the needs of the growing group aged 25 and over;
- . raising further the participation rate of women;
- . improving accessibility for Franco-Ontarians;
- . improving accessibility for native peoples;
- . improving accessibility for individuals from socially and economically disadvantaged backgrounds;
- . improving accessibility for the physically handicapped through improved physical access and study aids;
- . improving accessibility for those who live in the remote areas of the province by expanding communications aids for distance-learning.

The successful pursuit of these objectives would broaden participation. Because the needs of non-traditional groups differ from those of the traditional clientele, institutions would have to increase their adaptive capacity.

Educating and Training People for the Professions

Universities are heavily committed to preparing students for careers. While all studies at the university level can be a valuable preparation for a career or profession, some programs are more directly vocational. Programs in traditional and newer professional fields fit into this category: law, medicine, engineering, architecture, dentistry, pharmacy, nursing, physio- and occupational therapy, veterinary medicine, education and theology. A number of programs are closely linked with specific occupations or industries, for example, agriculture, journalism, household science, social work, library science, physical education, management studies.

In arts and science faculties there are many disciplines that relate to work opportunities and that provide the underpinnings for entire industries, among them accounting, botany and zoology, chemistry, computer science, geography, geology, mathematics and statistics, modern languages, physics, psychology, fine and applied arts, music.

While data on changing student preferences are inadequate, it appears that the share of enrolment represented by the arts and science disciplines grew during the 1960s; since then it has declined. Such shifts may have been due in large part to the rise and subsequent fall in demand for elementary and secondary school teachers. Although data on enrolment by program are incomplete, it is estimated that more than three quarters of the current undergraduate full-time enrolment is in programs having either a direct or indirect career or professional orientation.

This second objective has been met insofar as all professional and direct career programs are covered and they are reasonably distributed across the province. Within limits, shifting student preferences are being accommodated, but much remains to be done:

- . responding to demonstrated needs for further development in some currently available professional and vocational fields;
- . responding to the need for new professional and vocational programs;
- . responding to the need to make many of these programs available to students on a part-time basis;
- . responding to the need to assist the professions in providing continuing education programs;
- . expanding research in those fields where it is now underdeveloped.

To what extent should professional and vocational programs accommodate future demand? Part of the answer is provided by the operational objectives. If Ontario is properly to meet the second objective, opportunities for study in these program areas should be sensitive to student demand. What is the role of manpower planning in determining the supply of places? Centralized manpower planning is often

ineffective; it is too easily upset by unpredictable economic developments and policy changes. However, it is more appropriate in some disciplines than in others. Government policy regulates or strongly influences supply in some professions, for example, medicine and education, and a change is not foreseen here. The professions themselves may claim a role in determining supply. In programs that are costly, there does not appear to be any justification for expanding enrolment unless a shortage is foreseen. These general limitations aside, the policy of meeting student demand is sound. Prospects for the 1980s are that demand will remain strong in all professional and most career-oriented programs.

Providing for Study at the Highest Intellectual Level

This objective deals primarily with graduate studies and as such is linked to the fourth objective - research.

In the 1960s, graduate studies in Ontario grew very rapidly in response to such factors as the shortage of Canadian university faculty, the rapid development of research and scholarship in Canada and the growing demand for advanced education, mainly at the master's level, in a number of professional areas. Enrolment stabilized in the early 1970s, however, and has remained fairly level since then. Between 1972-73 and 1979-80, enrolment grew on a full-time equivalent basis by only 4.6 per cent. At the end of the decade, full-time enrolment was barely 200 students above what it had been at the start.

Despite the relative stability of enrolment levels, there have been significant shifts between discipline areas. At the master's level, the humanities declined 14 per cent between 1975-76 and 1979-80. Natural and applied sciences declined 18 per cent in the same period. Life sciences enrolment increased by 19 per cent and social sciences by five per cent. At the doctoral level, the humanities declined by 18 per cent and the natural and applied sciences by 14 per cent. Social sciences remained stable and life sciences increased by 12 per cent.

During the 1960s and 1970s the number and range of graduate programs expanded considerably at both the master's and doctoral levels. As a result, there is now wide coverage in both the traditional core areas and in specialized fields, that is, fields relating directly to certain professions or careers. Currently there are 391 master's programs offered

in the fifteen universities. The majority of the programs are in the traditional core areas; the bulk of the enrolment is in the specialized programs. At the doctoral level there are 237 programs covering 77 disciplines offered in ten universities.

The decline in graduate enrolment during the 1970s in the traditional core discipline areas has been caused in large measure by the decline in career opportunities for university faculty and highly qualified researchers in some of the natural and applied sciences. These kinds of career continue to be the primary aspirations of doctoral graduates in most fields of study. A strong demand for bachelor's level graduates in some fields also made graduate schools economically unattractive compared to immediate employment, thus removing some potential students from the graduate population. Since these conditions are likely to persist through the first half of the decade, it is reasonable to assume that this decline may accelerate slightly. At the same time, enrolment in some specialized program areas can be expected to rise because of the manpower shortages that now exist. Thus, over-all graduate enrolment is likely to remain stable.

But there are problems on the horizon that deserve immediate attention. Given the abnormal age distribution of university faculty in Canada, there will be a significant increase in faculty attrition beginning in the latter part of the 1980s as older faculty reach retirement age. Retiring faculty will need to be replaced if the universities are to be adequately staffed; since it takes between four and six years beyond the baccalaureate level to reach the doctoral level, planning to meet these manpower needs should begin now. Moreover, the need for qualified researchers, which is projected to grow during the decade, should also be taken into account. Graduate studies are vitally important here, both because they are the training ground for future researchers and because graduate students comprise a cadre of research assistants and collaborators.

In light of these considerations, the following are challenges for the future:

- . doctoral programs should be maintained at a level that will ensure a proportional contribution by Ontario to the development of faculty manpower;

- . graduate programs at all levels should be capable of providing the specialists and researchers needed by the private and public sectors in sufficient numbers to avoid net dependence on migration;
- . the universities should have the capacity to respond promptly to newly perceived needs for specialists and researchers;
- . the programs of international calibre that now exist in Ontario should be protected;
- . the quality of currently available programs should be improved.

Basic and Applied Research: Development and Evaluation

Universities are major repositories of research capacity and have a unique role to play in this area. Not only do they train future researchers in their graduate programs, but their faculty also constitute the largest single group of active researchers, particularly in the area of basic research. Research activity in Ontario universities grew rapidly after the Second World War, but the major expansion took place in the 1960s. Large numbers of highly qualified and research-minded faculty were added. Capital spending on physical facilities, library resources and laboratory equipment increased. Graduate programs were developed across a wide range of disciplines. As a result, the research capacity of Ontario universities grew and was put immediately to use. New research teams were formed; new research centres and institutes were established; and a general climate favouring research was cultivated.

In 1976-77, research funding amounting to approximately \$112.5 million was provided to Ontario universities, mainly by federal and provincial granting agencies. This amounts to over 40 per cent of the sponsored research undertaken in that year in Canadian universities and reflects the proportion of the total Canadian university faculty complement located in Ontario universities. But expressed in constant dollars, funds for sponsored research have remained almost level during the 1970s.

Current estimates of institutional commitment to research show that university operating funds finance approximately 53 per cent of research in the natural sciences and about 78 per

cent of research in the social sciences. The universities' proportion of research spending in the humanities is much higher. A recent study done for the Canadian Committee on the Financing of University Research estimates that, on the average, 35 per cent of the resources of universities are devoted to research.

By the end of the 1970s, serious concern about deteriorating conditions was expressed by the research community and the universities. To date, most direct grants in aid for sponsored research done in Canada have come from the federal government through its three major granting agencies: the Natural Sciences and Engineering Research Council, the Social Sciences and Humanities Research Council and the Medical Research Council. But the base support - provision of space, faculty and staff salaries, and research leaves - for university research capacity comes through provincial capital and operating grants. Therefore it is essential that an effective partnership be developed between the federal and provincial levels for the support of research.

It is also essential that an effective partnership be established between government, business and industry and the universities for the development of appropriate policies and strategies on research.

In the latter part of the 1970s, the research capacity of Ontario universities diminished. The stock of research equipment acquired in the 1960s as part of the capital expansion is rapidly becoming worn out or obsolete. Although no accurate estimate can be made of replacement costs, the maintenance of "state of the art" research capability could require \$25 million annually over and above the current levels of expenditure. Library holdings are also in need of replenishing, since the sums allocated annually for this purpose are well below the rate of inflation. These costs are in addition to the losses in research capacity caused by increased teaching loads and the decline of graduate student numbers in certain discipline areas.

There are some encouraging prospects. There is growing recognition of the need for Canada and for Ontario to expand their investment in research and development, and there are some signs that a more effective partnership between government, business and industry and the universities will be developed.

Against this background the following are challenges for the future:

- . making available appropriate opportunities for research in all discipline areas of each university (This is fundamental to the idea of the university and secures the necessary foundation for quality in higher education.);
- . increasing the capacity of the universities to respond to new needs in research, especially those that contribute to the development of Ontario;
- . shoring up the equipment base of the universities to allow them to be effective in current research;
- . increasing the ability of the universities to co-operate effectively with industry and government on research in areas of national need;
- . maintaining research activity independent of fluctuations in student numbers.

Providing Service to the Community

As mentioned previously, universities offer many different kinds of service to the community in fulfilling their academic functions related to teaching and research. In meeting this fifth objective, universities provide many direct services to the community that are by-products of their academic and professional activities. The universities' vast expertise is readily available and frequently used by the community. University staff, as consultants, commissioners, mediators, arbitrators, municipal officials and members of hospital and school boards, provide many valuable services to the community.

As well, universities provide public lectures, concerts, theatre, art expositions and athletic events, usually in their own facilities. They make these facilities readily available to the community. They provide legal clinics and a variety of health services including medical and dental clinics; they offer consulting advice to local businesses and industry. Their staffs participate actively in community organizations.

In all these ways universities make important contributions to the life of the community in which they are situated. The dependence of the community on these services provided by the university is inversely related to the

availability of such services elsewhere in the community. In this regard the role of the university in the smaller, more remote, more isolated communities is especially important. In these areas the university is frequently the focus of the cultural and recreational life of the community as well as its intellectual centre. In the larger metropolitan areas, the role of the university in these matters is more limited, but it is seldom insignificant.

To the extent that universities are vital and vibrant, they perform these kinds of community service effectively. In the future, universities will not only be expected to maintain these services but will undoubtedly be pressed to meet new needs in this area.

Conclusion

In this chapter, the committee has reviewed the degree to which the current publicly stated objectives for the universities of Ontario have been met over the past decade and has identified some of the challenges facing Ontario universities if the needs and opportunities of the decade ahead are to be met. These challenges include widening accessibility to meet the aspirations of individual citizens belonging to such groups as the Franco-Ontarians, the native peoples, the economically and socially disadvantaged and developing programs to meet new needs for continuing and part-time education. Furthermore, if Ontario is to compete in the world economy and fulfil its traditional role in the life of Canada, a greater effort on the part of the universities is essential to provide the general education, professional training, advanced scientists and researchers, and research and development activities necessary for the future well-being of Ontario and its citizens.

The extent to which these needs and opportunities can be met will depend upon the level of resources available to the universities. That is the subject of the next chapter.

II. FUNDING IN RELATION TO OBJECTIVES

The preceding chapter has identified the objectives established for the Ontario university system, outlined the extent to which these have been met during the 1960s and 1970s and noted those areas where further effort may be appropriate. This chapter turns to the task of assessing the implications of various hypothetical levels of funding for the pursuit of these objectives during the 1980s.

Meeting these objectives is costly; so is failure to pursue them. It was sincere and profound worry about the capacity of the university system to meet these objectives at recent levels of funding that led the chairmen of governing bodies and the executive heads of the universities to express their concern to the premier last summer. Their concern, and that of the government, accounts in turn for the emphasis that the terms of reference of this committee accord to relating objectives and funding to the entire decade of the 1980s. Funding levels are decided upon from year to year, but their impact on the capacity of the university system to achieve the objectives is cumulative.

Three models are presented.¹ All develop from stated assumptions. Model 1, of which there are two variants, projects funding levels at a modest rate of real growth that would make it possible in some degree to meet the needs and pursue the opportunities outlined in chapter one.

Model 2 is the funding level model developed by OCUA. It takes into consideration a projected decline in enrolment between 1984 and 1991 and anticipates increased "productivity" from the university system.

Model 3, of which there are three variants, projects a level of support that lags, in varying degrees, behind the rate of inflation. The results of each of the three models and their variants are expressed in constant dollars.

Before developing these models in detail, the committee wishes to stress one crucial point. People are the heart of the university. Universities depend upon the academic staff and the support staff to accomplish the objectives that in

1. For details concerning the methods of calculation, see Appendix A.

turn serve the students and the public of Ontario. Approximately 80 per cent of the cost of operating universities is composed of salaries and benefits. Significant reductions in expenditure, therefore, involve reductions in staff costs, either in salary levels or staff numbers. Such reductions have direct negative effects on the people involved and on the ability of the universities to achieve their objectives. In describing the consequences of those models that project declines in revenue, the committee is very conscious of their negative implications.

MODEL 1

Model 1 affords opportunities that, with prudent decision making, would enhance the ability of the universities to meet the challenges outlined in chapter one. Faculty and staff complement size is projected to remain constant for the system as a whole, although the size of individual institutions might increase or decrease. Model 1 also assumes that funds will be provided to meet the projected costs of reasonable salary settlements in the accepted pattern, i.e., including "progress through the ranks" (PTR).²

MODEL 1a

Model 1a, the first variant of Model 1, involves the following assumptions:

1. the costs of inflation will be met;
2. the costs of PTR (at a net cost of two per cent per annum from 1981-82 to 1985-86 and one per cent per annum thereafter) will be met;
3. no account will be taken of changes in enrolment, and should enrolment decline, any resources liberated will be directed to the objectives outlined in chapter one; and
4. additional funding on the order of \$25 million per annum for equipment and furniture replacement (based on a 15-year replacement cycle) will be provided.

2. See Appendix A for an elaboration of this point.

According to Model 1a, the 1980-81 funding base of \$1,064.1 million would grow (in constant dollar terms) to \$1,227.2 million by 1990-91, an increase of \$163.1 million or 15.3 per cent. This would entail an average annual increase of \$13.8 million in addition to the provision of \$25 million per year for equipment replacement.

Impact of Model 1a on Objectives

At this level of funding, the ability of the university system to fulfil the objectives outlined in chapter one would be enhanced considerably over what it is today. Of particular importance would be the potential for strengthening research capability. The extra funds for equipment would enable the institutions to upgrade and replace equipment at a realistic rate. In addition, the scope of research and teaching could be enhanced to the extent that normal attrition permits universities to appoint new full-time faculty and staff in areas of academic priority. The new appointments would allow the institutions to respond in a positive way to Ontario's needs in research and the need for new academic programs to meet future requirements.

The system, both in terms of people and equipment, would have a degree of flexibility that should allow it to respond to government policy and the program innovations required to meet the challenge of the future. There is no question but that some progress could be made towards extending accessibility to those groups listed under the first two objectives in chapter one. For example, in order to respond to Ontario's need for more highly educated manpower, part-time programs for professionals and other occupational groups could be implemented. Again, the funding made available for equipment would improve research capacity, which is of increasing importance if Ontario is to participate in the development of high technology. In fact, with the level of funding assumed by Model 1a, some progress would be made in most of the possible extensions of the objectives identified in chapter one.

A word of caution, however, is in order. Up to this point, the discussion has been based, in part, on the assumption that enrolment from the traditionally dominant 18-24 age group will decline and that resources will thus be available for new initiatives. It should be remembered that enrolment levels are not easy to predict with any accuracy. For example, a return to the 1976-77 participation rate for the 18-24 age group would result in the maintenance of current

enrolment levels during the 1980s from the traditional client groups alone. If this occurred, the capability of the universities to extend services to new groups and to develop new programs would be limited.

Impact of Model 1a on Allocative Mechanisms

At this level of funding it is expected that the question of allocative procedures would not be contentious. Formula funding would probably be basically acceptable and the bulk of available funds would be distributed in this manner.

MODEL 1b

Model 1b is identical to Model 1a, except that it does not contain any special provisions for coping with equipment and furniture replacement. Under this variant the financial requirements of Ontario universities would increase by \$138.1 million or 13.0 per cent by the end of the decade, entailing an average annual increase of \$13.8 million.

Impact of Model 1b on Objectives

As with Model 1a, if enrolment does decline then increased student accessibility through improved service would be possible with the existing faculty and staff complement. But an important trade-off would arise vis-à-vis the necessity of providing support for equipment and furniture replacement within traditional expenditure patterns if research capacity is to be maintained. Maintaining research capacity would require reducing the degree to which the improvements envisaged in 1a could be realized.

Suppose, however, that the need for equipment was such that funds had to be found from other sources in the budgets of the universities. One possibility would be to remove all positions released by attrition for one year. This would provide \$10.6 million per year for the decade and would preserve some of the current capacity to undertake research. This possibility is in some measure theoretical, because attrition takes place randomly and is seldom related to the universities' teaching and research needs. In fact, a university would probably redirect some funds released by attrition each year to resolve special equipment problems.

Impact of Model 1b on Allocative Mechanisms

As with Model 1a, a formula allocative mechanism would probably remain acceptable. Some intervention might be needed to promote role differentiation and rationalization, and it would be much more likely that serious consideration would have to be given to providing special support for equipment and library expenditures, and for other needs.

MODEL 2

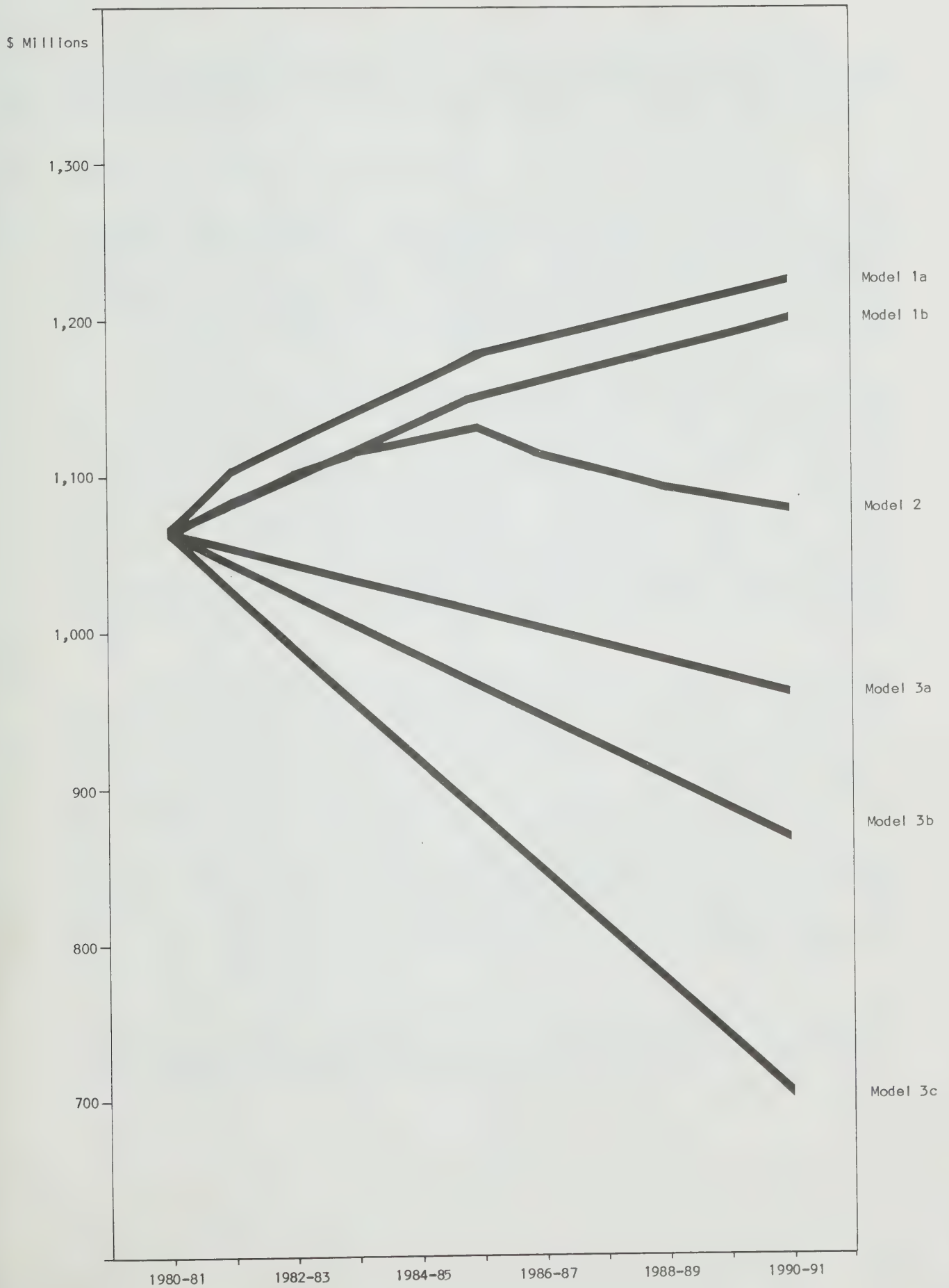
This model projects university expenditure requirements on the basis of the Ontario Council on University Affairs' funding model. It incorporates allowances for forecasted enrolment change and increased productivity, as well as the PTR costs identified under Model 1. The specific assumptions for Model 2 are:

1. the costs of inflation will be met;
2. the cost of PTR (at a net cost of two per cent per annum from 1981-82 to 1985-86 and one per cent per annum thereafter) will be met;
3. an increase in productivity of 0.5 per cent per annum will be achieved; and
4. enrolment will vary annually in accordance with the projected (by Statistics Canada) change in the 18-24 age group. Enrolment variations are discounted by 50 per cent.

According to Model 2, the 1980-81 funding base of \$1,064.1 million would be \$15.4 million or 1.4 per cent higher in 1990-91. This end result, however, would have been produced by a real growth of 6.2 per cent in the first five years of the decade, followed by an almost equally great decline in the last five years as shown in Figure 1. By the end of the decade, total expenditures would be 10.2 per cent less than those projected in Model 1b.

In this model the level of funding in each of the first five years is roughly the same as in Model 1b; in the latter half of the decade the rate of decline is similar to Model 3a. Although the level of funding for the first five years is close to that of Model 1b, prudent management for the downturn in the second five years would require preparatory actions during the first five years, including diverting expenditures from meeting the current objectives.

Figure 1 Projected University Expenditures In Constant Dollars
1980-81 to 1990-91



In the following discussion the committee deals with the decade as a whole, taking no account of variations from year to year or between the first and second halves of the period.

Impact of Model 2 on Objectives

From the universities' perspective, this financial option has several disadvantages. It makes no attempt to restore ground lost in the late 1970s; rather, Model 2 assumes financial adjustment to enrolment variation and additional productivity improvements despite the lost ground. No special provisions are made for furniture and equipment replacement (beyond what the universities consider to be the present inadequate base).

If Model 2 were to be implemented, the impact of funding levels keyed to projected enrolment decline and compounded by the application of the productivity factor would be severe by the end of the decade. If the reductions in funding were to be distributed across all categories of expenditure, a complement reduction on the order of 1,300 full-time equivalent (FTE) faculty positions and 1,800 FTE support positions would be required. This amounts to ten per cent of the total manpower of the system.³ If these manpower reductions were to be compressed into the latter half of the decade, the measures that would be required and their impact would be identical to those in Model 3a.

The full extent of manpower reductions could be avoided if salary settlements in each year of the decade were, on average, one per cent below inflation. Salary settlements below the rate of inflation can be considered feasible only if the balance of the 1980s yields public and private sector settlements that are similarly below the rate of inflation. Otherwise, even though such action would maintain the size of the system, it would produce some negative effects. Inadequate salary levels would likely result in the loss of high quality faculty and staff to those sectors able to provide higher compensation, and achievement of all the objectives would be compromised to some degree. Objectives three and four would be particularly affected, because the best research people are very mobile.

3. See Appendix A for the calculations relating to the method of determining complement reduction.

Further, complement reductions of the magnitude indicated above would exacerbate the system's present resource allocation problems and limit further its ability to respond to perceived needs for re-direction. The least unattractive method of achieving the required reductions in complement might seem to be for the universities to take full advantage of normal rates of attrition over the decade. But, since attrition tends to occur in areas of high student and employer demand more frequently than in low demand areas, some existing strong programs would be weakened, and some programs would collapse altogether. Moreover, planning for decline in the second half of the decade would surely involve planning for program closure. Given the necessary lead time to effect reductions in expenditures by these means, plans to close programs would have to be made immediately, during the period of continuing expansion. Such measures would have serious adverse effects on the ability of the system to meet its objectives.

Another simplified approach to reducing expenditures would be by increasing teaching loads through the cancellation of research leaves or other means. Such an approach would in fact reduce expenditures only if the faculty made redundant by higher teaching loads were removed from the system. The consequences of this action, however, would seriously affect the research capacity of the system. Furthermore, unless most universities in North America and Europe followed suit, many of the best faculty would go elsewhere.

However the necessary complement reductions were achieved, the implications for the objectives of the system would be the following:

- . no expansion of accessibility could be expected;
- . in terms of professional programs, significant positive responses to new challenges would not be possible;
- . research potential would suffer because the infusion of new faculty and technical personnel needed to maintain scholarship and research and to stimulate new developments would be foregone;
- . research potential would also suffer because of perpetuation of the current equipment problem; accordingly, the universities' capacity for assisting industrial innovation could not be expected to grow;

- . a decrease in the extent and quality of community service would be inevitable.

Impact of Model 2 on Allocative Mechanisms

Without examining in detail the possible variations to the existing allocative mechanism, it seems clear that some adjustments would be necessary. While an enrolment-based formula might continue to be an acceptable way of allocating most of the resources available, certain problem areas would have to be addressed. For example, special funding provisions might be necessary for institutions particularly affected by such factors as role differentiation, geographic significance and inability to adapt to changing circumstances. Incentive grants designed to promote changes in institutional program offerings would warrant serious consideration to enable the universities to meet the cost of closing down some programs.

MODEL 3

All three variants of Model 3 assume that a funding model such as that used by the Ontario Council on University Affairs produces results that exceed resources the government is prepared to commit to the university system. This assumption is not inconsistent with recent history.⁴ Indeed, since 1977-78, whether because of a program of fiscal restraint, reduced potential for increased government revenue, the need to shift government expenditure priorities or some combination of these factors, universities have received a level of global funding that is below the rate of inflation.

MODEL 3a

Model 3a, the first variant of Model 3, assumes that there will be an effective annual reduction in university support at a rate of one per cent below the level of inflation.

4. For four consecutive years, university revenue has fallen short of the level deemed necessary by the OCUA by 1.1 per cent in 1978-79; 2.5 per cent in 1979-80; 2.8 per cent in 1980-81; and 2.4 per cent in 1981-82.

It produces a decline in revenue of \$101.7 million or 9.6 per cent over the decade. This is equivalent to reducing funding by an average of \$10.2 million per year. In this model, by 1990-91, total expenditures would be 19.9 per cent below those projected by Model 1b and 10.8 per cent below those projected by Model 2.

Impact of Model 3a on Objectives

Model 3a dictates salary expenditures at 22.1 per cent below the levels postulated by Model 1b. These requirements could be met over the period of the decade by:

- a) salary settlements for the decade at a rate of two per cent per annum below the rate of inflation (Such settlements would be feasible over the decade only if all sectors within society were to accept settlements similarly below the rate of inflation.);
- b) complement reductions on the order of 2,900 FTE faculty positions plus 4,000 FTE non-academic staff positions (This represents a reduction of 22.1 per cent of FTE faculty and staff.);
- c) some combination of a) and b).

Potential effects on the objectives of the system that flow from the complement reductions outlined above would likely include the following:

- . in order to preserve core strength, universities would have to abandon educational "outreach" programs, terminate instructional programs in a number of disciplines and impose severe enrolment limits in others;
- . in order to maintain quality, resources would likely be concentrated in identified areas at specific institutions, thereby reducing diversity of programs;
- . the university system would find itself in a situation where it would be unable to respond to provincial manpower needs, especially in terms of professional programs;
- . at this level of funding the preservation of a minimal range of graduate programs in the province would be all that could be expected;

- the research potential of the universities would be seriously impaired, since the termination of instructional programs would lead to corresponding losses in research capability;
- equally damaging would be the creation of an unfavourable climate for retaining able scientists and scholars;

serious erosion in community service would be unavoidable.

Impact of Model 3a on Allocative Mechanisms

Model 3a greatly accentuates the problems previously identified in connection with Model 2. At this level it is not clear that the formula method would hold. Even if the formula approach remained acceptable as the basic allocative method for a substantial portion of the total funds available, there would be strong pressures favouring an interventionist, non-formula grant system encompassing an increasingly large portion of total system support. Special support for the costs involved in facilitating complement and program reductions would have to be added to that provided for the purposes previously identified under Model 2. Given the lead time required to allow students to move through a program designated for termination and to effect the separation of long-term employees, special allocative measures would undoubtedly be required.⁵

In addition to inviting a more interventionist allocative system, the magnitude of the reductions contemplated would likely suggest the imposition of further control measures. These measures could include an embargo upon all new professional and graduate programs, or the setting of institutional enrolment ceilings. Such measures would probably require the exercise of system authority in virtually all areas of university operations. The questions raised concerning such system authority are dealt with in chapter three.

5. See Appendix B for a consideration of the magnitude of program elimination.

MODEL 3b

Model 3b, the second variant of Model 3, produces a further reduction in the universities' base budgets by assuming that university support will be two per cent below inflation each year for the balance of the decade.

In this variant, the shortfall in constant dollars would be \$194.7 million or 18.3 per cent over the ten-year period, entailing an average annual decrease of about \$119.5 million. The results suggest that, by the end of the decade, total expenditures would be 27.7 per cent below the costs of maintaining the existing university system as projected by Model 1b.

Impact of Model 3b on Objectives

This variant dictates salary expenditures at 29.6 per cent below the levels postulated by Model 1b. Such expenditure reductions could be effected only if the following measures were feasible:

- a) faculty and staff salary settlements at three per cent per annum below inflation, if all sectors of society are accepting such settlements;
- b) complement reductions on the order of 3,800 FTE faculty positions plus 5,300 FTE non-academic staff positions (These represent reductions of about 30 per cent of FTE complement.);
- c) some combination of a) and b).

Complement reductions of the magnitude indicated above would necessitate major changes in the structure of Ontario's university system. Rationalization of the system through voluntary program elimination would not achieve reductions of the scale required.

Basically, there are two alternatives for achieving such significant reductions in complements:

- 1. wholesale elimination of a significant number of academic programs at the undergraduate, professional and graduate levels (over and above those identified in connection with Model 3a); or
- 2. contraction of the system by the elimination of certain institutions from the list of those eligible for government support.

Extensive elimination of programs would produce:

- . reduced quantitative and geographic accessibility to undergraduate, professional and graduate programs (the severity of which depends upon demography, the participation rate and student program preferences);
- . reduced pursuit of intellectual activity and research (the severity of which depends on the extent to which the programs selected for elimination are of lower quality);
- . increased short-run financial pressure occasioned by the cost of faculty and staff reductions, coupled with continued institutional costs that are insensitive to program elimination.

It is evident that program elimination on such a major scale would mean that tenure could not be maintained. The program elimination option, therefore, might require modifications to existing labour contracts that link job security to tenure and seniority or, if necessary, the imposition of system-wide conditions of employment through legislative intervention. Such action might prove so unpalatable that the institutional closure route, which would confine these matters to the individual institution, might be deemed more acceptable.

In order to reduce expenditures to the extent required by Model 3b, the system-wide reductions occasioned by Model 3a must be augmented by the closure of one or a combination of institutions constituting about ten per cent of the present system. This option would entail:

- . a loss in geographic accessibility that could be tempered by the location of the institution(s) selected for closure;
- . a loss in quantitative accessibility that could be tempered by additional expenditures to promote student mobility;
- . a loss in accessibility to programs that are in high student demand, e.g., institutions selected for closure on the grounds that there is already more than one university serving a particular geographic location may also be institutions whose programs are in high demand;

- . a loss in intellectual activity and research, because every university in Ontario has a cluster of high-quality programs and faculty.

The financial savings generated by this option would be greater than those yielded by the program closure option because all the costs of the closed institution(s) would be eliminated. There would, however, be short-term costs associated with compensating released academic and support staff. There could be additional long-term costs to promote student mobility.

The specific effects of the required contraction would likely include some or all of the following:

- . the existing geographical distribution of academic programs would be severely curtailed;
- . for those institutions not eliminated, program closure might produce radical transformations. For example, the University of Guelph might become the "Guelph Institute of Life Sciences" or portions of Guelph, Waterloo, Wilfrid Laurier and McMaster universities might become the constituent parts of a "University of Central Ontario";
- . if priority were to be assigned to providing accessibility for basic undergraduate education, it is more likely that existing institutions would be contracted in size rather than given specialized roles;
- . if priority were to be assigned to the maintenance of some "full service" institutions, contraction of other institutions would, of necessity, be more extensive;
- . the loss of programs at the graduate level would be linked to changes at the undergraduate and professional level, but contraction would likely be greater at the graduate level.

Impact of Model 3b on Allocative Mechanisms

The effects described under the conditions of Model 3a would be accentuated. A strong measure of central authority would be required to achieve program elimination on the scale required by Model 3b. On the other hand, the closing of a major university, or of three or four smaller universities, might permit the retention of some form of formula allocation with respect to the remaining institutions.

The closing of any institution, even with reasonable prior notice, would require special funding arrangements to compensate long-term members of staff. Special grants for this purpose would probably have to be considered part of the legislative action required to effect university dissolution.

MODEL 3c

Model 3c, the third variant of Model 3, assumes that there will be an effective annual reduction in university support at a rate of four per cent below the level of inflation. This variant sees the funding of the system in constant dollars decreased by \$356.6 million.

Impact of Model 3c on Objectives

Such expenditure reductions could be met only if the following were feasible:

- a) faculty and staff salary settlements for the decade at approximately 4.5 per cent per annum below inflation, if all sectors of society are accepting such settlements;
- b) complement reductions on the order of 5,600 FTE faculty positions and 7,700 FTE non-academic staff positions;
- c) some combination of a) and b).

At this level of funding, none of the accessibility objectives would be feasible. Funding would be sufficient to maintain the present quality of education and research at only 60 per cent of the universities' present capacity.

CAPITAL FUNDING

Throughout this discussion, operating funds only have been considered in calculating the projected levels of expenditure. No account has been taken of the additional need for capital funds required for plant renovations, alterations or replacement. This financial requirement, however, should not be minimized. These funds are of critical importance to the universities, particularly those with aging physical facilities.

CONCLUSION

The implications of various funding levels for the objectives of the university system are multi-faceted and complex. For all this, however, the conclusions that can be distilled from the material presented in this chapter have a stark simplicity. To pursue the full range of objectives outlined in chapter one, the university system requires a level of funding that will rise at a modest rate of real growth. When the alternative represented by the OCUA model (Model 2) is projected over a full decade, it is clear that serious adjustments on the part of the universities are required and that some of the objectives become compromised. At the levels of funding variously below inflation hypothesized by the variants of Model 3, the objectives outlined in chapter one cannot be met; and quality can be salvaged only through increasingly drastic measures whose outcome is a commensurately inaccessible, elite and small Ontario university system.

III. STRUCTURE OF THE SYSTEM

Introduction

This chapter addresses the committee's fourth term of reference:

to define more clearly the appropriate joint roles of the institutions, the Council of Ontario Universities, the Ontario Council on University Affairs and the Government of the Province of Ontario.

It begins with a brief statement of the essential concerns of the universities and government in a publicly funded system and then proceeds to outline several alternative models for relating universities to government in such a system. Since it is necessary to provide an historical dimension to the consideration of such matters in order to develop an adequate appreciation of them, the chapter then reviews briefly the evolution to date of the Ontario university system, including its relations with government.

In the concluding section, more detailed consideration is given to the appropriate roles of COU and OCUA in the circumstances of the Ontario university system in the 1980s. Throughout, it should be recognized that any structure is but a means to an end, in this case having and maintaining universities of high quality in Ontario.

The Concerns of the Universities and Government

Ontario's institutions of higher learning share in the proud heritage of freedom of thought and enquiry that is the hallmark of universities throughout the free world. If the universities are properly to fulfil their role in society, which involves the transmission and advancement of knowledge in all its forms, it is widely recognized that they must remain free with respect to certain fundamentals.

Academic freedom and university autonomy, which is its institutional form, are traditionally described as embodying three elements: the freedom to determine who shall teach, what shall be taught and who shall be taught. More specifically, this implies that universities should be free to determine who shall be appointed to faculty, and the terms and conditions under which faculty members shall practice their profession; who shall be admitted to study and to pursue research; what shall be the content of curriculum and degree requirements;

what shall be subjects of research; and how the resources of the institutions shall be allocated internally. In the first instance these considerations involve individuals - faculty and students - and here we speak of academic freedom. As these considerations are reflected in the institution, we speak of university autonomy.

While such autonomy for the university and the academic freedom it is designed to protect are major conditions for the successful fulfilment of the university's mandate, they are not unlimited, particularly so in the case of universities which receive, as do the universities of this province, the major proportion of their financial resources directly from public funds. When this is the case, the government has a responsibility to ensure that the universities are adequately accountable for the expenditure of these public funds and efficient in the pursuit of those objectives for which the funding is provided. There is no quarrel with the principle that massive public financial support requires strict accountability.

The problem, of course, is to bring into harmony these two sets of considerations and to develop a structure in which the legitimate concerns of the universities and government are brought into an effective relationship.

Government must make the basic decisions on matters of public policy, while accepting advice from the universities about the implications of these policies on university activities. Government must establish the general objectives for its publicly funded institutions and determine the amounts of public monies it is prepared to provide them, while paying close attention to the judgments of the universities about the propriety of these objectives, their resource implications, and the ability of the institutions to meet them adequately with the level of resources provided. Government must determine the audit and other financial reporting procedures to be followed to enable reporting to the public through the legislature on the effective and economical use of the resources provided from the public purse, while respecting the views of the universities as to the appropriate forms of reporting.

These general considerations must be applied in relation to more specific policy issues such as accessibility, manpower planning, tuition fees, student aid and research programming, all of which carry implications for the relations between government and universities. The optimum method for allocating responsibilities for decisions on such issues cannot be determined in the abstract. To arrive at such a determination it is necessary to consider carefully the

history and present circumstances of the groups involved. Moreover, the determination of an appropriate allocation of powers involves making a choice from among a number of alternative models.

Alternative Models

The laissez faire model lies at one extreme, the centralized control model at the other. In the laissez faire model, each university is left entirely free to make its own decisions in academic matters and deals directly with the government to secure the public funds necessary for the pursuit of these activities. This was largely the condition of the universities in this province until the end of the 1950s. Although it affords maximum autonomy to the individual institutions, such a system is now generally regarded as inappropriate because of the level of funding that is provided by government.

The centralized control model, the common pattern of university organization in many European countries and elsewhere in the world, provides a minimum of institutional autonomy. The university system is organized as an arm of the central government, with government defining the organizational structure and administration of the universities; appointing faculty and administrative staff, who are civil servants; exercising detailed control over budgets and curricula; and even managing some of the services. Such a highly centralized system of control by government is widely regarded in the English-speaking world as providing too little freedom for the universities to fulfil properly their mission.

There are several alternatives to the two models described above, each of which involves some elements of centralized authority with corresponding limitations on institutional autonomy. One of these is the University Grants Committee (UGC) model developed originally in the United Kingdom. Established in 1919, the UGC, which is composed mainly of university academics, came to be viewed by many as the foremost example of how to have extensive public financial support without governmental control. Although the terms of reference constituted it as an advisory body, in practice it exerted executive power; after consulting with the universities, the UGC has disbursed grant money to the universities at its discretion. More recently the UGC has developed much closer relations with the Department of Education and Science. Together, these two central agencies have come to play an increasingly dominant role in planning national university policy in the United Kingdom.

Another model is that of partial state control, of which there are two major variants in the United States. One is the consolidated state university model, with a central board of governors or regents responsible for a multi-campus state university. In this jurisdiction it would be called the "University of Ontario". The other is the coordinating board model, in which a state coordinating body with specified executive powers stands between the individual institutions and the government. In both models a central agency exercises specified executive powers on behalf of the system.

Any detailed examination of the respective pros and cons of these models can best be undertaken within the context of given historical circumstances. For this reason we now turn to the history of the development of the Ontario university system.

The Evolution of the Structure of the Ontario University System

Until the end of the Second World War, except for the University of Toronto, the universities in Ontario were essentially private institutions. None received any appreciable amount of support from public funds. With the massive expansion of university education in this province in the 1950s and 1960s, all of this changed. This expansion was financed almost entirely by public expenditure, and this brought the government into university education in ways that previously had been largely unknown. With the expansion, some formerly religious institutions were secularized in order to become eligible for public funding and a number of new universities were founded. All were established by legislation as autonomous institutions with full university degree-granting powers. During the early part of this expansion phase, the universities operated for the most part as fully autonomous institutions, with a minimum of formal provision for communication, cooperation and coordination.

But soon it came to be recognized that, as the system developed in size and complexity, a more formal structure was required in order to provide increased public accountability, as well as to improve the universities' ability to fulfil their educational missions.

The Committee on University Affairs (CUA), predecessor of OCUA, and the Committee of Presidents of the Universities of Ontario (CPUO), predecessor of COU, were both set up in the early 1960s. The Department of University Affairs, later the Ministry of Colleges and Universities, was established in 1965.

In 1967, a formula for the distribution of operating grants, developed through consultation between CUA and CPUO, was accepted by government and put in place, and work was begun on a capital formula. At about the same time an appraisals system for the evaluation of proposed new graduate programs was developed and approved by CPUO, and the first tentative steps were taken towards the development of discipline assessment as the second major component in graduate planning.

In that same year, 1967, government decided to establish a Commission on Post-Secondary Education in Ontario, but it was two years before the commission was actually set up. The two reports of this commission, the preliminary one issued in 1971 and the final one published late in 1972, and in particular the responses they elicited, determined the structure of the Ontario university system in the 1970s. Although expressing the judgment that Ontario was being well served by its universities and indicating a preference for evolution rather than any radical departures, the commission in its preliminary report proposed some startling changes in the structure of post-secondary education in Ontario. It suggested the establishment of three coordinating boards, one for each of three post-secondary sectors, including one for the universities. This board was to have sweeping powers over the universities, including the power to establish new academic programs and faculties and to discontinue existing ones; the power to establish admission requirements for the institutions in its jurisdiction; and the authority to allocate both operating and capital grants. The proposal failed to gain the support of either the university community or government. The commission's preliminary report did, however, focus attention on the issue of structure.

In the final report the commission modified its earlier recommendations and proposed the establishment of an Ontario Council on University Affairs that would have both advisory and executive powers. The proposed new body was to plan and coordinate the university system in consultation with the universities and related voluntary associations; to advise the minister on global funding; and to allocate and distribute operating and capital funds on the basis of an objective formula.

COU strongly endorsed these proposals on the understanding that the new council would seek system planning advice from COU and would work closely with COU in the implementation of plans. What is noteworthy is that, despite earlier sharp disagreements with any proposal to provide some central authority, by the time the debate closed the various

university constituencies were all essentially in agreement with the commission's recommendation to give limited executive power to a new Ontario Council on University Affairs. The Council of Ontario Universities, the Ontario Confederation of University Faculty Associations, the Ontario Federation of Students and the universities all favoured such a move.

But this recommendation was rejected by government as being incompatible with the principle of cabinet responsibility in a parliamentary system. When government decided to replace the Committee on University Affairs with a new body, OCUA, it chose to make this body strictly advisory. Other than the change in name, the terms of the draft legislation establishing the new council were almost indistinguishable from the order-in-council establishing the now-defunct CUA. OCUA was empowered to make recommendations to the minister on any matter that, in the opinion of the council, concerned one or more Ontario degree-granting institutions or the students registered in such institutions, and to make recommendations in respect of any matter referred to it by the minister.

In announcing the establishment of the new council, however, the government stated its intention to strengthen the buffer between universities and government. In reaching a decision not to grant executive authority to a buffer body, the government decided to continue to reserve to itself the power to make policy decisions affecting the universities, though it was prepared to do so on advice rendered publicly by a body created for the purpose.

These decisions established the structure of the Ontario university system for the remainder of the 1970s. Although some additional limitations were placed on institutional autonomy in the area of graduate planning through the further application of the appraisals and assessment processes, the universities of Ontario continued to enjoy a relatively high degree of autonomy.

Heavily weighted in the direction of institutional autonomy, the system balances institutional autonomy and government authority by means of a series of checks operated through the exercise of cabinet and ministerial responsibility and the activities of the buffer advisory body, OCUA. Each institution enjoys its own separate juridical status under the terms of an act of the legislature; internal governance and management are the responsibility of an internal governing structure established by each university statute. An important measure of public accountability is achieved by the trusteeship role of each governing body.

Other sources of public accountability include statutory provisions under which universities are required to submit statistical and financial data to the Ministry of Colleges and Universities for tabling in the legislature, and the operating grants formula by means of which public funds continue to be disbursed on a non-discretionary basis related to enrolment on the advice of OCUA.

Because the advice of OCUA does not bind the minister or cabinet, government remains responsible and can refuse the advice if it so chooses. However, given the important role played by a non-discretionary formula and the balance of institutional and system interests that have evolved, such action would occur only for the most serious of reasons. While government is required to have the ministry estimates approved in the legislature, institutional internal governance, management, budgets and academic programs are neither scrutinized by the legislature nor under the direct control of the ministry.

During the 1970s, most other provincial jurisdictions in Canada were implementing decisions to provide for greater central control of academic program planning at both the graduate and undergraduate levels, either directly under the responsibility of the relevant minister or through some buffer agency. But in Ontario, academic planning in the system continued largely by cooperation and advice. However, by the end of the 1970s, in a setting of financial restraint and shifting priorities, serious questions were again raised in Ontario about the need for some additional central authority to improve the ability of the system to respond to these challenges.

The renewed debate on the structure of the Ontario university system was greatly stimulated by OCUA's September 1980 paper, System Rationalization: A Responsibility and an Opportunity. OCUA took the position that, in the face of funding which has strained the capacity of the universities to fulfil collectively their objectives, the universities must seek to maintain quality while making the most effective use possible of the public funds with which they are provided. To continue to accomplish this, OCUA suggested that there is need for further system-wide consolidation and rationalization, and that undesirable duplication in academic programming should be prevented and eliminated to protect existing academic programs of high quality, to preserve opportunities for innovation, and to ensure the availability and effective use of scarce resources in areas of need. OCUA suggested that the universities themselves, through COU, should attempt to rationalize the system. If, however, COU as a voluntary association of universities was unable to do so, some more centralized authority would be necessary.

Fundamental questions are again being raised about the structure of the Ontario university system. There is general agreement that the universities should retain a high degree of autonomy. At the same time, it is recognized that the sum of the decisions taken at each institution may not be appropriate from a provincial perspective. If such is the case, what body should make decisions on behalf of the system, decisions that may conflict with the interests of an individual institution?

When this question is set within the context of the evolution of the Ontario university system, the issue focuses immediately on the roles of COU and OCUA as bodies which might, singly or in concert, be asked to assume such responsibilities.

The University of Ontario

Before examining in detail the options involving COU and OCUA, it would be useful to examine a particular model involving a central authority, namely, the University of Ontario. Such a model would appear to have some immediate advantages to government. Instead of having to deal with a number of autonomous institutions, there would be only one governing body to deal with for the entire system. The upward line of accountability to government could be clear and direct; the downward line of implementation of policy and funding decisions equally so. The central governing body would be responsible for academic programs, budget matters, and staffing policy judged necessary to effect system planning. Some local initiatives would remain.

The creation of a single university would make possible the implementation of common terms and conditions of appointment for members of academic and academic support staffs, and common salary and benefit plans, which would facilitate staff mobility. It would be possible to retain the essentials of academic freedom so long as the university itself was autonomous in the matters mentioned earlier.

But there would be disadvantages. A single university for this province would be of such a size and complexity as to challenge the efforts of even the most able governors and administrators. Furthermore, Ontario is a large province and decisions made by the central governing and administrative bodies would be made very far from the campuses where they would be applied.

The management of such a large system would necessitate a large central bureaucracy, whose size and procedures would tend to stifle local initiatives and reduce flexibility. The current structure of internal university governance, which depends heavily on faculty and student involvement, would be substantially modified and many more decisions would be placed in the hands of administrators.

There would likely be considerable additional costs: for the large central bureaucracy and for meeting the irresistible pressures to improve salary and benefit levels across the system to the current best level. Also, it would be necessary to introduce legislation amending the charters of the existing institutions. Furthermore, to the extent that the University of Ontario might well warrant the status of a crown corporation, ministerial responsibility would be diluted and the board of the university would be destined to uncertain relations with the legislature.

While such highly centralized control can create the possibility of effective planning, the absence of sufficient checks and balances can just as easily produce the opposite. The central authority would continuously face the dilemma of whether to act as a strong advocate of the university to government, or whether to become an enforcer of government policy. As advocate, the board might serve the university well. If, however, the board became enmeshed in the political process, the negative implications for the university could be serious and likely long term. While it might be possible to control academic programs more effectively through the central governing board and even to eliminate certain programs on certain campuses, given the realities of an area-based legislature no government could remain aloof from the decision by the governing board to close an institution. In any event, there is no tradition in Ontario to support the model of the single university; indeed, the prevailing tradition opposes such a model.

The Roles of COU and OCUA

In the recent past there have been conflicting views of the appropriate relative roles of COU and OCUA. As a voluntary association representing the publicly financed universities in the province, COU performs a number of important, even essential functions on behalf of the system. These include the Ontario Universities' Application Centre and the Inter-university Transit System. The COU Division of Research is the source of much of the best research on university affairs being produced in Canada, and its Office of Communications has become an important communications link between the

universities and the wider community. Such activities should be maintained. COU is also deeply involved in graduate planning on behalf of the system. Through its many affiliates, such as the Committee of Finance Officers and the various councils of deans, and its many committees, COU plays a major role in exchanging information and assisting in the formulation of policy across a broad spectrum of areas of vital interest to the universities and the government.

But because it is a voluntary association, COU possesses certain limitations. It cannot compel participation in any of its activities. Neither can it make any decisions that are binding on its member institutions without their consent. This means that COU is never in a good position to referee or to settle disputes between or among its members. It cannot easily adopt policies that are judged contrary to the interests of any of its members; and if it does adopt such policies, it cannot enforce them. Moreover, as the history of the past two years has shown, attempts by COU to assume such a role led to misunderstanding and suspicion among member institutions and a general weakening of the council. COU could be changed to enable it to perform executive functions on behalf of the system. But such a change would seriously reduce its ability to perform its other functions and, without a change in the legal powers of individual institutions, would leave the possibility of direct approaches to government when institutional or regional concerns were at variance with COU decisions.

Reflection on such matters has led increasing numbers of members of the university community to conclude that COU is not the appropriate body to assume decision-making responsibilities on behalf of the system. To these considerations there should be added the argument that any such body representing the universities would not likely be accepted by government or by the public as credible when making decisions in which its members clearly were interested parties.

If there is need in Ontario for a coordinating body in the academic program area at both the graduate and undergraduate levels, can such a role be effectively performed by OCUA? In recent years the universities have been very reluctant to see OCUA granted such a role, in part because they remained unpersuaded of the need or of the desirability for any body outside of the universities to perform such a role, and in part because they perceived OCUA to be lacking the considerable academic resources required to make judgments on these matters that would be both sound and credible. But OCUA could be strengthened in order to fulfil a wider mandate.

Without altering its essential character as an advisory body, OCUA could, through its advice regarding the allocation of funds, assume a greater responsibility for the coordination of academic programming. In such a case, it would be desirable to specify more clearly the role of OCUA.

OCUA would continue to exercise de facto control through its recommendations on funding and other matters, while ministerial responsibility would be preserved and individual institutions would remain free, as at present, to argue their cases directly with government. At the same time, OCUA would continue to collaborate closely with COU, the individual institutions, and provincial organizations of faculty, staff and students. A high degree of institutional autonomy could be maintained. Each institution would continue to maintain and develop its academic programs subject only to limitations on program funding.

OCUA already has very broad terms of reference, but these could be made more specific if they expressly provided responsibility for offering advice on the funding of graduate and undergraduate programs, on the coordination of academic programming, including the introduction and dismantling of programs, and on enrolment levels and distribution, such advice to be given after review on the basis of specified criteria. Its role would be strengthened also if government were to request OCUA advice on all matters of policy directly affecting the universities or any of their academic programs prior to decisions being made with respect to such policies, e.g., decisions to establish new faculties or schools, changes in admission levels in programs where the number of students is directly controlled by government, tuition fees policy (including fees for visa students), and modifications in the student aid program.

As well, it could be made clear that OCUA would have discretion to offer advice on any matter involving one or more universities in the system or the system as a whole. This would give to OCUA specific responsibility for recommending which new programs should be funded and which existing programs should cease to be eligible for funding.

OCUA could also be responsible for recommending enrolment levels for which public funding would be provided. These recommendations might be for total enrolment quotas for each institution or for enrolment quotas by program. As well, it could make recommendations on library coordination and coordination in such other areas of large expenditure as computing and major scientific equipment.

If OCUA is to play this more extensive role, some changes in its organization would be desirable. OCUA would continue to have a predominantly lay membership, with a strong minority of academic members. It would continue to operate openly, holding public hearings and publishing its advice. It would also require a larger staff.

The council could be strengthened, however, by the provision of additional academic resources by means of strong academic committees whose membership would be determined by OCUA after consultation with COU and others. Such committees would assist OCUA in reaching decisions on funding of academic programs in relation to province-wide needs and other such criteria. In addition, OCUA should have available to it the results of a COU appraisal process applied stringently to all existing as well as new graduate programs.

Would such an increase in the de facto authority of OCUA be sufficient to enable the universities to improve their ability to serve the province? The answer to this question must be developed against the background of judgments made on matters addressed in the preceding chapters, where various levels of funding and their implications are explored.

A sound structure for the system will be one capable of operating at various levels of system resources. At levels of funding that generate modest real growth, OCUA, through the enhanced role outlined in this chapter, could encourage the institutions to take maximum advantage of the opportunities presented. At more stringent levels of funding, including levels that are moderately below the rate of inflation, this same role might provide sufficient central authority to effect the painful adjustments that would be entailed.

There are limits, however, on the ability of any advisory body to cope with a university system under severe fiscal restraint. Should restraint approximate the funding levels encompassed by models 3b and 3c in the preceding chapter, it is unlikely that any degree of incremental change, including direct ministerial control, would suffice. At such levels of funding, legislative intervention - whether to effect institutional closure or similar serious measures - could not be avoided.

CONCLUSION

In this preliminary report, the committee has concentrated upon a review of the extent to which the universities have met, in the past two decades, the currently accepted objectives. An examination is also made of what remains to be done in the 1980s to serve the people of Ontario and Canada. This has involved analyzing the effects of different funding levels and governing structures on the ability of the universities to meet these objectives.

The committee has not attempted to address comprehensively every issue arising from its terms of reference, nor has it made any recommendations. Rather, the committee has sought at this stage to identify the consequences of the choices to be made.

The committee looks forward to receiving the views of the university community and the public upon the issues raised in this preliminary report before proceeding to prepare its final report.

APPENDIX A: CALCULATION OF EXPENDITURE MODELS

The Base Year

The base employed in the calculation of all expenditure models is the estimate of the university system's expenditures in 1980-81 contained in the Ontario Council on University Affairs' Advisory Memorandum 80-II. The base expenditures include those of the fifteen provincially assisted universities, the affiliated colleges, Ryerson Polytechnical Institute, the Ontario Institute for Studies in Education, the Ontario College of Art and Dominican College. Total expenditures have been distributed between salaries and fringe benefits, and non-salary items as follows:

Salaries and Fringe Benefits:	\$860.9 million
Non-Salary Items:	<u>\$203.2 million</u>
TOTAL:	\$1,064.1 million

A detailed description of the derivation of the base is provided in Appendix B of Advisory Memorandum 80-II.

Progress Through the Ranks

Organizations have various ways of providing compensation to their employees for experience and job re-classification. PTR is a university designation for such "step increases" (as distinct from "scale increases" or "across the board" increases). Given a uniform age distribution, the costs of PTR should be met from the difference between the higher average salaries of people leaving a given work force and the lower salaries of new recruits.

Because of the rapid growth of the university system in the 1960s and early 1970s, university staffs today have a relatively low average age; very few staff members are at or approaching retirement age. This situation is probably not unique to the universities, but it represents a net annual cost to the system. Eventually, as the age distribution changes, the costs associated with PTR will approach zero. Indeed, it is anticipated that PTR will constitute a negative incremental cost by the late 1990s.

MODEL 1

- a) The Costs of PTR: are calculated by multiplying the salaries and fringe benefits component for each year by 102 per cent (to 1985-86) and 101 per cent (to 1990-91). Non-salary costs remain constant. On this basis, salary and fringe benefit costs increase by \$138.1 million (from \$860.9 million to \$999.0 million) or 16.0 per cent.
- b) Additional Equipment and Furniture Funding: is calculated by adding \$25 million to the non-salary expenditures of \$203.2 million (an increase of 12.3 per cent). Thus non-salary costs increase to \$228.2 million (in constant dollars) in 1981-82 and then remain at that level throughout the period.

Model 1a (which incorporates both PTR costs and additional equipment and furniture funding) projects a \$163.1 million increase in total expenditures (from \$1,064.1 million to \$1,227.2 million), an increase of 15.3 per cent.

Model 1b (with PTR costs as the only variable) projects that total expenditures will increase by \$138.1 million (from \$1,064.1 million to \$1,202.2 million) or 13.0 per cent.

MODEL 2

- a) Costs of PTR: are calculated in the same manner as that used under Model 1 above, but due to the introduction of other variables, the increase is \$135.3 million (12.7 per cent).
- b) Productivity: is calculated by subtracting 0.5 per cent from both the salaries and fringe benefits, and non-salary components each year. The actual dollar values (in \$ million) thus derived are as follows:

	<u>Salary</u>	<u>Non-Salary</u>
1981-82	-4.4	-1.0
1982-83	-4.5	-1.0
1983-84	-4.6	-1.0
1984-85	-4.7	-1.0
1985-86	-4.7	-1.0
1986-87	-4.7	-1.0
1987-88	-4.7	-1.0
1988-89	-4.6	-1.0
1989-90	-4.6	-0.9
1990-91	-4.6	-0.9

- c) Enrolment Variation: is calculated by taking one-half of the projected percentage change in the 18-24 age group (as estimated by Statistics Canada) for each year. This variable is applied to both the salary and non-salary components. The actual variations applied and the dollar values (in \$ million) thus derived for each year are as follows:

	<u>Enrolment Variations (x 0.5)</u>	<u>Change in Salary</u>	<u>Change in Non-Salary</u>
		(\$ million)	(\$ million)
1981-82	+0.8%	+7.0	+1.6
1982-83	+0.5%	+4.5	+1.0
1983-84	+0.2%	+1.8	+0.4
1984-85	-0.3%	-2.8	-0.6
1985-86	-0.8%	-7.5	-1.6
1986-87	-1.5%	-14.0	-3.0
1987-88	-1.3%	-12.0	-2.5
1988-89	-1.2%	-11.0	-2.3
1989-90	-1.0%	-9.1	-1.9
1990-91	-1.1%	-10.0	-2.0

Model 2 thus projects an increase of 12.7 per cent (\$135.3 million) in salary expenditures due to the costs of PTR, a decrease of 4.3 per cent (\$46.1 million) in salary expenditures due to productivity and a decrease of 5.0 per cent (\$53.1 million) in salary expenditures due to enrolment

variation. Thus salary expenditures increase, in total, by \$36.1 million (from \$860.9 million to \$897.0 million) or 4.2 per cent. Non-salary expenditures decrease by 4.8 per cent (\$9.3 million) due to productivity and 5.4 per cent (\$10.9 million) due to enrolment variation, for a total decrease of \$20.7 million (from \$203.2 million to \$182.5 million) or 10.2 per cent. Total expenditures, therefore, increase by \$15.4 million (from \$1,064.1 million to \$1,079.5 million) or 1.4 per cent.

- d) Complement Reductions: are calculated by comparing the results of each expenditure model to the estimated costs of maintaining the existing university system as calculated under Model 1b. For Model 2, the differences in 1990-91 are as follows:

	<u>Model 1b</u>	<u>Model 2</u>	<u>Difference</u>
Salary Expenditures	999.0	897.0	-102.0 (10.2%)
Non-Salary Expenditures	203.2	182.5	- 20.7 (10.2%)
	<hr/>	<hr/>	<hr/>
TOTAL	1,202.2	1,079.5	-122.7 (10.2%)

In calculating the complement reductions, an estimated base of 13,000 FTE faculty positions and 18,000 FTE non-academic staff positions is used. The actual reductions dictated by Model 2 are, therefore, calculated as follows:

Faculty: $13,000 \times .102 = 1,326$ (rounded to 1,300)

Staff: $18,000 \times .012 = 1,836$ (rounded to 1,800)

The additional reductions suggested by the provision of special equipment funding on the order of \$25 million were calculated by taking the portion of that amount which would be taken out of salary expenditures (80.9 per cent of \$25 million = \$20.2 million) and subtracting that amount from the 1990-91 salary expenditure levels postulated by Model 2 (\$897.0 million - \$20.2 million = \$876.8 million). The revised salary expenditure figure is 12.2 per cent less than the 1990-91 salary figure under Model 1b (\$999.0 million). The additional reductions were, therefore, calculated as follows:

Faculty: 13,000 x .122 = 1,586 - 1,326 = 260

Staff: 18,000 x .122 = 2,196 - 1,836 = 360

MODEL 3

The variants of this model were calculated by multiplying both salaries and fringe benefits, and the non-salary components for each year by:

- a) 99 per cent (in the case of Model 3a - 1 per cent below inflation);
- b) 98 per cent (in the case of Model 3b - 2 per cent below inflation); and
- c) 96 per cent (in the case of Model 3c - 4 per cent below inflation).

MODEL 3a

Model 3a resulted in a decrease of \$82.3 million (from \$860.9 million to \$778.6 million) or 9.6 per cent in salary expenditures, a decrease of \$19.4 million (from \$203.2 million to \$183.3 million) or 9.5 per cent in non-salary expenditures and thus a decrease of \$101.7 million (from \$1,064.1 million to \$962.4 million) or 9.6 per cent in total expenditures. When the results of Model 3a are compared to the costs of maintaining the existing university system as projected by Model 1b, the differences are as follows:

	<u>Model 1b</u>	<u>Model 3a</u>	<u>Difference</u>
Salary Expenditures	999.0	778.6	-220.4 (22.1%)
Non-Salary Expenditures	203.2	183.8	- 19.4 (9.5%)
	<hr/>	<hr/>	<hr/>
TOTAL	1,202.2	962.4	-239.8 (19.9%)

Complement reductions, therefore, are calculated as follows:

Faculty: 13,000 x .221 = 2,873 (rounded to 2,900)

Staff: 18,000 x .221 = 3,978 (rounded to 4,000)

MODEL 3b

Model 3b projects a decrease of \$157.5 million (from \$860.9 million to \$703.4 million) or 18.3 per cent in salary expenditures, a decrease of \$37.2 million (from \$203.2 million to \$166.0 million) or 18.3 per cent in non-salary expenditures and, therefore, a decrease of \$194.7 million (from \$1,064.1 million to \$869.4 million) in total expenditures. When the 1990-91 results of Model 3b are contrasted with the 1990-91 results of Model 1b, the differences are as follows:

	<u>Model 1b</u>	<u>Model 3b</u>	<u>Difference</u>
Salary Expenditures	999.0	703.4	-295.6 (29.6%)
Non-Salary Expenditures	203.2	166.0	- 37.2 (18.3%)
	<hr/>	<hr/>	<hr/>
TOTAL	1,202.2	869.4	-332.8 (27.7%)

Complement reductions, therefore, are calculated as follows:

Faculty: 13,000 x .296 = 3,848 (rounded to 3,800)

Staff: 18,000 x .296 = 5,328 (rounded to 5,300)

MODEL 3c

Model 3c shows a decrease of \$288.5 million (from \$860.9 million to \$572.4 million) or 33.5 per cent in salary expenditures, a decrease of \$68.1 million (from \$203.2 million to \$135.1 million) or 33.5 per cent in non-salary expenditures and a decrease of \$356.6 million (from \$1,064.1 million to \$707.5 million) or 33.5 per cent in total expenditures. The results of the variant, when compared to the results of Model 1b, yield the following differences:

	<u>Model 1b</u>	<u>Model 3c</u>	<u>Difference</u>
Salary Expenditures	999.0	572.4	-426.6 (42.7%)
Non-Salary Expenditures	203.2	135.1	- 68.1 (33.5%)
	<hr/>	<hr/>	<hr/>
TOTAL	1,202.2	707.5	-494.7 (41.1%)

Thus complement reductions are calculated as follows:

Faculty: 13,000 x .427 = 5,551 (rounded to 5,600)

Staff: 18,000 x .427 = 7,686 (rounded to 7,700)

APPENDIX B: PROGRAM ELIMINATION

In order to provide some concept of the magnitude of program elimination necessary to achieve a 10% reduction in the system, a selection of programs has been randomly chosen from each institution. No system priority is implied by the following list. It is simply a list that approximates 10% of the enrolment in each institution at both the undergraduate and the graduate level.

INSTITUTION	UNDERGRADUATE PROGRAMS CONSTITUTING APPROXIMATELY 10% OF ENROLMENT	GRADUATE PROGRAMS CONSTITUTING APPROXIMATELY 10% OF ENROLMENT
Brock	Physical Education	Biological Sciences and Politics
Carleton	Commerce	Social Work
Guelph	Biology (excluding Zoology and Fish and Wildlife)	English, History, Philosophy and Psychology
Lakehead	Nursing and all Physical Science Programs	Economics and Sociology
Laurentian System	Translation and Psychology	Chemistry
McMaster	All Humanities plus Electrical Engineering	All graduate work in the Health Sciences
Ottawa	All Fine and Applied Arts, all Biolo- gical Sciences and Civil Engineering	Religious Studies
Queen's	Education and Law	Economics and Geography
Toronto	Engineering and Physical Education	Social Work and all Fine and Applied Arts
Trent	Commerce and Geography	Chemistry
Waterloo	Kinesiology, Recreation, Anthropology and all languages (except English)	Psychology
Western	Fine Arts, Commerce, Biology and all Physical Sciences	All programs in the Humanities
W. L. U	Sociology, Biology and Psychology	Religious Studies, History and Political Science
Windsor	All Social Sciences (except Commerce, Law and Social Work)	Engineering
York	Fine Arts	Classics, English and all Physical Sciences
Ryerson	Social Work, Journalism and Mass Communications	NA
OISE	NA	Educational Administration

